REMARKS

Reconsideration is respectfully requested.

Statement of the Substance of the Examiner Interview

As a preliminary matter, Applicant acknowledges with appreciation the courtesy of a telephone interview granted by Examiner Ramsey on July 29, 2003. During the interview, Applicant's representatives noted that the first Office Action was improperly made "Final" as the response accompanying the RCE filed on March 27, 2003 includes claim amendments, and that several new claims that were not earlier presented were added. The Examiner alleged that the new claims and amended claims were drawn to the "same invention" in the context of a statutory double patenting rejection under 35 U.S.C. §101. The Examiner further referred to MPEP 822.01 in support thereof.

Applicant traverses the finality of the rejection in the accompanying response and requests issuance of a non-final action herein if this application is not allowed. Also, during the interview, differences between the claimed invention and the prior art of record were discussed. Applicant's representatives noted that the combination of the prior art references fails to teach or suggest all the limitations of at least claim 16. In particular, differences between the claimed invention and that of Benjamin were discussed. No agreement was reached.

In the instant response, claims 15-18, 24, 32, 41, and 45 have been amended and new claims 63-64 added. Accordingly, claims 11-27, 32, and 41-64 are pending in this application. Claim amendments and new claims find support at least at page

8, line 23 to page 9, line 5, page 12, lines 18-22, page 13, lines 17-19, page 14, lines 1-2, and Figure 2 of the present specification.

Claims 11-27, 32, and 41-47 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,872,019 to Lee in view of U.S. Patent No. 5,655,940 to Hodson et al. and U.S. Patent No. 4,808,983 to Benjamin et al.; and Claims 11-27, 32, and 41-62 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Lee in view of Hodson and Benjamin and further in view of U.S. Patent No. 6,326,221 to Lee. All the claims of this application were finally rejected in the instant Office Action which is a first Office Action issued after filing of a request for continued examination (RCE) on March 27, 2003.

The instant Office Action was made "Final" under MPEP §706.07(b). Applicant respectfully traverses such an action as being improper. The Office Action asserts that "all claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office Action if they had been entered in the application prior to entry under 37 CFR 1.114." Applicants respectfully disagree.

The instant Office Action is a first action issued after filing an RCE with an accompanying amendment on March 27, 2003. In the March 27, 2003 response accompanying the RCE, Applicant made amendments to claims 16-17, 41, 45, and added new claims 48-62.

MPEP 706.07(b) set forth that the claims of a new application may be finally rejected in the first Office Action "when all claims of a new application are drawn to the same invention claimed in the earlier application."

However, in the present application, Applicant not only made amendments to the claims 16-17, 41, 45, but added new claims 48-62 as well. Such new claims were not earlier presented during prosecution. Accordingly, all claims of the present application presented after filing an RCE on March 27, 2003 are not drawn to the same invention claimed in the earlier application. At least for this reason alone, the issuance of the first Office Action Final was improper. However, Applicant is filing this response with an RCE in an effort to expedite prosecution of this application. Applicant requests a non-final action if the application is not allowed in view of the new subject matter presented by the amended and new claims.

The Examiner during the July 29, 2003 telephone interview and reiterated in the Interview Summary Record alleged that the new claims and amended claims were drawn to the "same invention" in the context of a statutory double patenting rejection under 35 U.S.C. §101 and further referred to MPEP 822.01 in support thereof. The Examiner further alleges that "same invention" as used in Chapter 700 has the same meaning as "same invention" under MPEP 822.01 which meaning includes claims that differ in scope but lack patentable distinctness." (Emphasis Added). Applicant respectfully disagrees in view of the following.

A reliable test for double patenting under 35 U.S.C. §101 is whether a claim in the application could be literally infringed without literally infringing a corresponding claim in the patent. *In re Vogel*, 422 F. 2d 438, 164 USPQ 619 (CCPA 1970). In this

regard, the Vogel court held "same invention" means "identical subject matter." See In re Vogel, *supra*. The Vogel court in an example noted that the invention defined by a claim reciting "halogen" is not the same as that defined by a claim reciting "chlorine," because the former is broader than the latter. A good test, and probably the only objective test, for "same invention," is whether one of the claims could be literally infringed without literally infringing the other. (Emphasis added) See In re Vogel, *supra*. If it could be, the claims do not define identically the same invention. Thus, Vogel teaches that the test for same-invention double patenting is "whether one of the claims in the first patent could be literally infringed that falls within the scope of one claim, but not the other? If true, then identical subject matter is not defined by both claims. The court in *In re Eckel* held that same invention means identically same invention. (Emphasis added) See *In re Eckel*, 55 CCPA 1068, 393 F. 2d 848, 157 USPQ 415 (1968).

In view of the standard as noted above that defines "same invention", Applicant submits that claim 16 which was amended to include the feature "wherein demarcation of individual regions of the emitters is achieved by forming address lines that are effectively contained within the individual respective regions of the emitters" is not identical to unamended claim 16 and therefore includes patentable distinctness over unamended claim 16. Claim 17 includes similar amendments. Claims 41 and 45 were amended to include "wherein partitioning of the matrix is performed by forming address lines that are effectively contained within the respective sub-matrices of field emitters." Accordingly, the claims presented in the amendment dated March 27, 2003 include patentable distinctness. Thus, the Examiner's assertion that such claims are drawn to

the same invention claimed in the application prior to the entry of the submission is improper.

In view of the above, Applicant respectfully urges that the finality of the Office Action is improper. However, Applicant is filing this RCE to further prosecution, and in accordance with the above, a non-final action is appropriate in view of the newly submitted and amended claims herein.

Applicant respectfully traverses the rejection of Claims 11-27, 32, and 41-47 were rejected under 35 U.S.C. §103(a) as being unpatentable over Lee in view of Hodson and Benjamin.

Lee discloses fabrication of a field emitter array (FEA) on a single substrate together with MOSFETs to drive the FEA. As acknowledged by the Office Action, Lee fails to teach or suggest:

> "the emitter being arranged into more than one demarcated, independently addressable region of emitters; and
>
> "providing address circuitry operably coupled with the field emitters and configured to independently address individual regions of the emitters, wherein the arrangement of emitters defines a plurality of rows and columns within each region, and the providing of the address circuitry comprises providing at least two row drivers for addressing rows in different regions of the emitters."

While acknowledging the above noted deficiencies of Lee, the Office Action refers to Hodson and Benjamin to cure Lee's deficiencies. Although the Office Action correctly notes that Hodson discloses creation of a large field emission display device by arranging a plurality of independently addressable emitter plates on a substrate, applying the teachings of Hodson to Lee nevertheless fails to teach or suggest all the above recited elements of claim 15.

As shown in Hodson's Figure 2 and acknowledged in Section 3 of the Office Action, Hodson discloses a method of fabricating a large field emission display by mounting a plurality of emitter plates on a substrate, and each emitter plate is controlled by distinct row and column drivers. Also see Hodson's col. 4, lines 5-15. The Office Action asserts that this teaching of Hodson when combined with Lee would result in claim 15 of the present invention.

In Hodson, individual cathodes (emitter plates) 50, 60, 70, and 80 are affixed on a panel 40 to create a large display field emitter device. However, emitter plates (50, 60, 70, 80) are not formed on a baseplate. See col. 4, lines 1-20. Individual emitter plates which are electrically independent from one another (col. 5, lines 42-45) are mounted on a panel to create a large display field emitter device. Accordingly, individual cathodes have independent address lines. Therefore, there would be no need to ensure forming of address lines in order to contain them to respective individual regions of the emitters as it is done in claim 15 of the present invention to provide demarcation of individual regions of the emitters in order to achieve electrical isolation.

The Examiner refers to Benjamin to cure the deficiencies of the combination of Lee and Hodson. However, Benjamin fails to cure such deficiencies for the following reasons:

Amended claim 15 recites, in part, wherein a length of at least one of the rows and columns within the each region is less than a length and width, respectively, of the region comprising the at least one of the rows and columns.

Benjamin discloses a flat panel display and a process for making the same. Benjamin at col. 8, lines 10-22 merely discloses that a number of encoders may be

used in parallel and that it is desirable to drive a display from both sides. No emitter regions are formed in Benjamin. The Office Action alleges that col. 8, lines 10-22 of Benjamin teaches "subdividing the monolithic display matrix into independently driven sub-matrices such that for each region of the matrix the row or column lines are no more than 15 cm long."

Benjamin does not show matrices or sub-matrices as it has nothing to do with addressing of field emitters, or isolation of field emitters formed in one region or sub-matrix from another region or sub-matrix. Accordingly, the subsequent question of ensuring addressing of all field emitters formed within individual sub-matrices by forming at least one address line having a length that is less than a length of the respective individual sub-matrices is neither taught nor disclosed by Benjamin.

Benjamin merely refreshes chips disposed along a line from both directions to achieve a faster refresh rate. There is no addressing scheme in Benjamin as recited in claim 15. Benjamin's Fig. 13 shows an encoder and chip layout for a flat-panel TV screen wherein a flat panel display 1 is disclosed having chips 9 which are disposed in a plurality of lines. An individual encoder EE is used to update pixels disposed along each line, and display 1 is driven from both sides to rapidly update individual chips 9. See col. 8, lines 1-20. Further, the display 1 is driven from both sides of the display in order to obtain a fast refresh rate. See col. 8, lines 15-18 which discloses, in part, "using lines 15 cm long and 150 chips per line (controlling 600 pixels), the pixels can be updated 25 times per second...." Benjamin merely refreshes <u>all</u> individual chips disposed along a line and does not provide an addressing circuitry configured to independently address individual regions of the emitters. Since the display 1 is not

divided into individual regions, the question of addressing respective regions of the display does not even arise. Even if Lee is combined with Hodson or Benjamin, all the limitations of claim 15 are not met.

As mentioned above, Benjamin fails to teach or suggest that the length of at least one of the rows and column within the each region is less than a length and width of the region comprising the at least one of the rows and columns as recited in claim 15. For example, assuming for argument sake that chips 9 shown in Fig. 13 are arranged into two different regions on a display device 1 with each region being separately refreshed by lines connecting chips 9 in the respective regions, Benjamin still fails to teach or suggest that the length of row and column address lines within the individual regions of the display device is less than the length and width of the individual regions within which the row and column address lines are formed as required by claim 15.

Amended claim 15 further recites, in part, wherein an RC time constant of the field emission display device is reduced compared with address lines having dimensions substantially equal to the substrate. In addition to the deficiencies as noted above, neither Lee or Hodson or Benjamin, either independently or in combination, teach or suggest this new claim feature of claim 15.

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teachings or suggestion supporting the combination. The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that

the claimed invention is rendered obvious. See *In re Fritch*, 23 USPQ 2d 1780 (Fed. Cir. 1992).

In order to arrive at the claimed invention as suggested by the Examiner, one would have to first modify the teachings of Lee to arrange the plurality of emitters into more than one demarcated, independently addressable region of emitters as recited in claim 15 and then subsequently use the teachings of Hodson to the modifications made to Lee. Furthermore, the combination of Lee and Hodson must further be modified with Benjamin's teachings. Even then, all the limitations of claim 15 are not met. Such a reconstruction by the Examiner would have been possible only by performing reverse engineering in hindsight – which is impermissible and so held by the courts as well as the Board of Appeals in numerous cases.

Furthermore, modification of Lee to accommodate the teachings of Hodson **destroys** Lee's intended function. Lee intends to manufacture two devices -field emitter arrays and MOSFETs to drive the FEA – in a single fabrication process in order to reduce manufacturing cost of the field emitter display. See Lee's col. 7, lines 45-50. If Lee is modified as suggested by the Examiner, then the modification amounts to having a plurality of row and column drivers, thereby resulting in increases manufacturing costs, which obviously would be a deterrent for one looking for motivation to use Lee. Such a modification destroys what Lee intends to achieve.

For example, Lee's Figure 7 shows a single drive circuit connecting the rows and another single drive circuit connecting the columns. If independent addressable drivers are used for various field emitters, then such a modification would no doubt increase the manufacturing cost of the device – which clearly is not in line with Lee's intended

purpose (reduce manufacturing cost). If Hodson's independent addressing of emitter plates scheme is applied to Lee, then each region or sub-matrix having field emitters should be provided with it's own driver circuitry thereby driving up the manufacturing cost, and such is against Lee's teachings.

As such, even if Lee is combined with Hodson, all the limitations of claim 15 are not met, and Benjamin fails to cure the deficiencies of the combination of Lee and Hodson.

At least for the above noted reasons, neither Lee nor Hodson or Benjamin, either alone or in combination, teach or suggest all the elements of claim 15. Accordingly, claim 15 and its dependent claims are in condition for allowance.

Claims 16-18, 24, and 32 are patentably distinct over the combination of Lee, Hodson, and Benjamin at least for the reasons set forth above with regard to claim 15 in addition to their own independent claim features. In addition to the distinctions described above with regard to claim 15, Lee fails to teach or suggest arranging field emitters into more than one demarcated, independently addressable region of emitters. Therefore, with regard to Lee, the step of informing how the demarcation is achieved (by forming address lines that are effectively contained within the individual respective regions of the emitters) does not arise. Further, neither Hodson nor Benjamin or Lee, teach or suggest the above recited feature of claim 16. Accordingly, claim 16 is also in condition for allowance.

Since the combination of Lee, Hodson, and Benjamin fail to teach or suggest all the limitations of claim 17, and further in view of distinctions as noted above, claim 17 is also in condition for allowance.

Neither Lee, nor Hodson, or Benjamin, taken independently or in combination, teach or suggest all the limitations of claim 18, including providing row and column address lines operably coupled with the matrix and collectively configured to address the field emitters, at least one of the row or column address lines having a length within the matrix which is sufficient to address less than all of the field emitters which lie in the direction along which the at least one row or column address line extends within the matrix. Claim 18 and its dependent claims are therefore in condition for allowance.

Claim 24 recites a method of forming a field emission display (FED) device comprising, *inter-alia,* "providing a substrate configurable into a base plate...; forming a plurality of discrete, segmented regions of field emitter tips by removing at least portions of the substrate; individual discrete, segmented regions being electrically isolated into separately-addressable regions of field emitter tips...." Neither Lee nor Hodson or Benjamin teach or suggest the above recited limitations in addition to the deficiencies noted above with regard to claim 15. Claim 24 is allowable for at least this reason. Accordingly, claim 24 and its dependent claims are in condition for allowance.

Claim 32 recites, among other things, providing a monolithic addressable matrix of rows and columns of field emitters, the matrix having a perimetral edge defining length and width dimensions of the matrix, partitioning the matrix into a plurality of discretely-addressable sub-matrices of field emitters, providing row and column address lines operably coupled with the matrix and collectively configured to address the field emitters, at least one of the row or column address lines having a length within the matrix which is sufficient to address less than all of the field emitters which lie in the

direction along which the at least one row or column address line extends within the matrix.

While acknowledging Lee's deficiencies as noted above with regard to claim 32, the Office Action relies on Hodson and Benjamin to supply Lee's deficiencies. Modifying Lee according to Hodson or Benjamin to allegedly render obvious the claim element "partitioning the matrix into a plurality of discretely-addressable sub-matrices of field emitters" is improper, and would destroy Lee's intended purpose.

The Office Action further asserts that Benjamin at col. 8, lines 10-22 teaches "that a monolithic plate 3 having an array of pixel electrodes p thereon and plural driving circuit chips 9 requires subdividing the matrix into sub-matrices such that the row and column lines are no more than 15 cm long." Applicants respectfully disagree.

Benjamin's col. 8, lines 10-22 disclose "there is no need to have just one encoder for the whole display; instead a number of encoders EE may be used in parallel, for example one to each line. Using lines 15 cm long and 150 chips per line, the pixel can be updated 25 times per second...." It is not clear how this disclosure of Benjamin is being read on the below noted recitation of claim 32:

> providing row and column address lines operably coupled with the matrix and collectively configured to address the field emitters, at least one of the row or column address lines having a length within the matrix which is sufficient to address less than all of the field emitters which lie in the direction along which the at least one row or column address line extends within the matrix...

As noted above with regard to claim 15, Benjamin fails to teach or suggest "at least one of the row or column address lines has a length within the matrix which is sufficient to address less than all of the field emitters which lie in the direction along

which the at least one row or column address line extends within the matrix" as recited in claim 32.

Amended claim 32 further recites that at least one of the row address lines formed within the individual sub-matrices has a length that is less than a length or a width of the respective individual sub-matrices, and at least one of the column address lines formed within the individual sub-matrices has a length that is less than the length or the width of the respective individual sub-matrices. Neither Benjamin nor other references of record teach or suggest this claim feature.

At least for the above stated reasons, neither Lee nor Hodson or Benjamin teach or suggest all the elements of claim 32. Accordingly, claim 32 and its dependent claims are in condition for allowance.

Applicants arguments made with respect to claims 15 and 32 are applicable to claims 41 and 45, which claims are also patentably distinct for their own independent claim features. Accordingly, claims 41 and 45 and their respective dependent claims are also allowable.

Claims 11-27, 32, and 41-62 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Lee in view of Hodson and Benjamin and further in view of Lee '221. Applicant's arguments made above with regard to claims 15 and 16 using the combination of Lee, Hodson and Benjamin are also equally applicable here. Lee '221, however, fails to cure the deficiencies of Lee or Hodson or Benjamin.

As claims 48-49 depend from claim 15, they too are allowable. For example, claim 48 recites that the independently addressable regions of emitters are formed by configuring a photomask such that subsequently etched row and column lines extend

across a matrix that corresponds to the addressable regions of the emitters. Claim 49 recites that the independently addressable regions are formed by modifying the photomask such that subsequently-etched row and column lines are contained within individual respective regions of emitters without extending into other individual regions.

The Office Action asserts that the step of forming conductor patterns by blanket formation of a conductive region and using a mask to etch away unwanted portions to form the conductor pattern is well known as taught by Lee '221. Col. 5, lines 27-30 of Lee '221 merely discloses that a "metal FEA for use in FED is completed after patterning the gate electrodes by a photolithography process." Although using a photomask during an etching process may be known, forming row and column address lines by depositing a conductive material and then subsequently using a photomask to form separately addressable regions so that row and column address lines do not extend across the entirety of the addressable matrix contained within a respective region is neither taught nor suggested by Lee '221. Where is it shown in Lee '221 that a photomask is used to form separately addressable regions so that row and column address lines do not extend across the entirety of the addressable matrix contained within a respective region as recited in claim 48. Dependent claims 50-62 are allowable for similar reasons set forth above with regard to claims 48 and 49.

New claims 63-64 are allowable at least for the reasons set forth above with regard to claim 15, 24, 32, and 41.

Accordingly, claims 11-27, 32, and 41-64 are in condition for allowance.

While it is believed that the instant amendment places the application in condition for allowance, should the Examiner have any further comments or suggestions, it is requested that the Examiner contact the undersigned at 509-624-4276.

Respectfully submitted,

Dated: August 22, 2003 By: K Satheesh Kv

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